Observations of an Occultation of Saturn by the Moon; of Occultations of Stars by the Moon; and of Phenomena of Jupiter's Satellites; made at the Royal Observatory, Greenwich, from 1869, *April, to* 1870, *April.*

(*Communicated by the Astronomer Royal.*)

Occultation of Saturn (*Disappearance and Reappearance*), 1870, *April* 19.

Phenomenon.	Greenwich Mean Solar Time of Observation. Hour and Minute.	Seconds observed by E.	C.	J. C.
	h m	s	s	s
First Contact with Ring	14 55	49·8	55·5	50·8
First Contact with Ball	14 56	13·8	17·4	16·7
Total Disappearance of Ball	14 56	44·7	53·3	60·1
Total Disappearance of Ring	14 57	15·6	16·8	24·6
First Reappearance of Ring	16 4	...	34·2	33·5
First Reappearance of Ball	16 5	...	0·1	0·4
Last Contact with Ball	16 5	...	40·5	44·3
Last Contact with Ring	16 6	...	5·4	6·2

Notes by E.—With the Altazimuth and a power of about 100. The first three times probably uncertain to 1^s or 2^s; the last still more uncertain, the light of the planet by contrast with the Moon being extremely faint.

By C.—With the Sheepshanks Equatoreal and a power of 64. The observations of the disappearance were not considered good, owing to the great faintness of the planet on approaching the bright limb of the Moon; the first contact with the limb of *Saturn* being the best. The observations of the reappearance were considered pretty good; those of the first limb of the planet and last contact of ring being thought the most accurate. There was not the least trace of alteration of the planet's form noticed; in fact, the Moon's limb at the reappearance seemed to divide the planet with extraordinary sharpness. Owing to the amount of colour on *Saturn*, in order to get a good image I reduced the aperture of the object-glass to $4\frac{1}{2}$ inches; this gave a very nice image indeed.

By J. C.—With the Great Equatoreal and a power of 340. At disappearance the planet was a very dull object when in contact with the Moon; its light probably a twentieth as bright. The times noted are probably correct to a second, except the last, which is doubtful to two or three seconds. At reappearance the planet was rather tremulous; no distortion whatever was noticed.

Occultations of Stars by the Moon.

Day of Observation.	Phenomenon.	Moon's Limb.	Mean Solar Time.	Observer.
1869.			h m s	
June 23	(*a*) μ^1 Sagittarii, disappearance	Bright	10 53 22·5	D.
Aug. 2	Aldebaran, reappearance	Dark	13 13 39·8	J. C.
Dec. 14	ξ^2 Ceti, disappearance	Dark	9 20 17·5	E.
1870.				
Feb. 10	*m* Tauri, disappearance	Dark	9 8 16·3	E.

(*a*) The star very faint at disappearance.

Phenomena of Jupiter's Satellites.

Day of Obs. 1869.	Satellite.	Phenomena.	Mean Solar Time. h m s	Observer.
Oct. 5	I.	Eclipse, disappearance	12 44 55·9	H.C.
21	III.	Eclipse, disappearance	8 50 45·6	C.
	III.	Eclipse, reappearance	10 32 43·9	C.
	III.	(*a*) Occult. disappearance, bisection	10 55 10·2	C.
	I.	Eclipse, disappearance	11 2 59·0	C.
Nov. 15	III.	Transit, ingress, first contact	10 13 16·0	J.C.
	III.	,, ,, bisection	10 21 44·6	J.C.
	III.	Transit, egress, bisection	11 51 29·8	J.C.
	III.	,, ,, last contact	11 57 58·7	J.C.
19	II.	Eclipse, reappearance	13 17 37·2	J.C.
Dec. 14	II.	Eclipse, reappearance	10 22 31·7	E.
15	I.	Eclipse, reappearance	10 3 21·1	D.
1870. Jan. 30	I.	(*b*) Eclipse, reappearance	10 37 24·5	S.
Feb. 27	III.	Eclipse, disappearance	9 23 30·0	S.
Mar. 13	II.	(*c*) Eclipse, reappearance	6 52 17·7	J.C.
Apr. 4	III.	(*d*) Eclipse, reappearance	7 18 26·3	E.

(*a*) Owing to the path of the satellite cutting the disc of the planet at a very small chord, and the occultation being little more than a graze, it was impossible to estimate with any accuracy the time of occultation.

(*b*) A haze prevalent; the time noted probably somewhat late.

(*c*) The sky rather bright from daylight.

(*d*) Very faint; the time noted is that at which the satellite was first seen; it conld not have been visible more that a few seconds previously.

The initials S., D., E., C., J. C., and H. C. are those of Mr. Stone, Mr. Dunkin, Mr. Ellis, Mr. Criswick, Mr. Carpenter, and Mr. H. Carpenter.

Occultation of Saturn by the Moon, Tuesday, April 19, 1870.

By Capt. W. Noble.

As this was my first view of *Saturn* this year I occupied myself, from $14^h\ 40^m$ L.M.T., in scrutinising the physical features of the planet before the occultation. I employed a power of 255 on my 4·2-inch Equatoreal, the same with which I subsequently observed the occultation itself.

Notwithstanding *Saturn's* small altitude he was well and sharply defined, Ball's division being visible over the North Pole. The shadow of the ball was of course to the west of it on the rings. The crape ring C was seen in the ansæ very distinctly. *Saturn* appeared of a richly greenish yellow when compared with the brilliant white light of the Moon.